

In re Patent Application of
ESPOSITO CORCIONE ET AL.
Serial No. Not Yet Assigned
Filed: Herewith

In the Claims:

Claims 1-5 (Cancelled).

6. (New) A hybrid vehicle comprising:
an internal combustion engine;
an electric motor;
a drive wheel associated with said electric motor
and having a hub;
an axle extending into the hub of the drive wheel;
at least one rechargeable battery;
a power circuit for driving said electric motor by
drawing power from said at least one rechargeable battery and
for recharging said at least one rechargeable battery; and
an electronic torque management unit for controlling
said internal combustion engine and said electric motor;
said electric motor being reversible and comprising
a ferromagnetic pack mounted on said axle
for forming a stator within the hub of the drive
wheel, and
a rotor mounted adjacent the stator within
the hub of the drive wheel.

7. (New) A hybrid vehicle according to Claim 6,
wherein said electronic torque management unit controls said
internal combustion engine and said electric motor so that
both are powering the hybrid vehicle at a same time.

8. (New) A hybrid vehicle according to Claim 6,
wherein said electronic torque management unit controls said
internal combustion engine and said electric motor so that
only one is powering the hybrid vehicle.

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9. (New) A hybrid vehicle according to Claim 6, wherein the hybrid vehicle is a motorcycle and the drive wheel associated with said electric motor is a front wheel; and wherein said electric motor is in the hub of the front wheel.

10. (New) A hybrid vehicle according to Claim 6, wherein the rotor of said electric motor comprises a permanent magnetic rotor.

11. (New) A hybrid vehicle according to Claim 10, wherein said permanent magnetic rotor comprises a sintered drum having a magnetic material that is permanently magnetized along longitudinal bands for defining a plurality of magnetic poles having an alternating polarity around a circumference of the drum.

12. (New) A hybrid vehicle according to Claim 6, wherein said power circuit comprises a phase winding driving circuit for the stator of said electric motor, a battery charger circuit and terminals wired to the stator; and wherein said electronic torque management unit configures the terminals as output terminals for said phase winding driving circuit and as input terminals for said battery charger circuit.

13. (New) A motorcycle comprising:
an internal combustion engine;
an electric motor;
a front wheel associated with said electric motor
and a rear wheel associated with said internal combustion

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engine, said front wheel having a hub;

 a front axle extending into the hub of said front wheel;

 at least one rechargeable battery;

 a power circuit for driving said electric motor by drawing power from said at least one rechargeable battery and for recharging said at least one rechargeable battery; and

 an electronic torque management unit for controlling said internal combustion engine and said electric motor;

 said electric motor being reversible and comprising

 a ferromagnetic pack mounted on said front axle for forming a stator within the hub of said front wheel, and

 a rotor mounted adjacent the stator within the same hub of said front wheel.

14. (New) A motorcycle according to Claim 13, wherein said electronic torque management unit controls said internal combustion engine and said electric motor so that both are generating torque on their respective front and rear wheels at a same time.

15. (New) A motorcycle according to Claim 13, wherein said electronic torque management unit controls said internal combustion engine and said electric motor so that only one is generating torque on their respective front and rear wheel.

16. (New) A motorcycle according to Claim 13, wherein the rotor of said electric motor comprises a permanent magnetic rotor.

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17. (New) A motorcycle according to Claim 16, wherein said permanent magnetic rotor comprises a sintered drum having a magnetic material that is permanently magnetized along longitudinal bands for defining a plurality of magnetic poles having an alternating polarity around a circumference of the drum.

18. (New) A motorcycle according to Claim 13, wherein said power circuit comprises a phase winding driving circuit for the stator of said electric motor, a battery charger circuit and terminals wired to the stator; and wherein said electronic torque management unit configures the terminals as output terminals for said phase winding driving circuit and as input terminals for said battery charger circuit.

19. (New) A method for powering a hybrid vehicle comprising an internal combustion engine, an electric motor, a drive wheel associated with the electric motor and, having a hub, an axle extending into the hub of the drive wheel, and at least one rechargeable battery, the method comprising:

driving the electric motor by drawing power from the at least one rechargeable battery and for recharging the at least one rechargeable battery, the electric motor being reversible and comprising a ferromagnetic pack mounted on the axle for forming a stator within the hub of the drive wheel, and a rotor mounted adjacent the stator within the hub of the drive wheel; and

controlling the internal combustion engine and the electric motor using an electronic torque management unit.

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20. (New) A method according to Claim 19, wherein the electronic torque management unit controls the internal combustion engine and the electric motor so that both are generating torque at a same time.

21. (New) A method according to Claim 19, wherein the electronic torque management unit controls the internal combustion engine and the electric motor so that only one is generating torque.

22. (New) A method according to Claim 19, wherein the hybrid vehicle is a motorcycle and the drive wheel associated with the electric motor is a front wheel; and wherein the electric motor is in the hub of the front wheel.

23. (New) A method according to Claim 19, wherein the rotor of the electric motor comprises a permanent magnetic rotor.

24. (New) A method according to Claim 23, wherein the permanent magnetic rotor comprises a sintered drum having a magnetic material that is permanently magnetized along longitudinal bands for defining a plurality of magnetic poles having an alternating polarity around a circumference of the drum.

25. (New) A method according to Claim 19, wherein the hybrid vehicle further comprises a battery charger circuit for recharging the at least one rechargeable battery.

REMARKS